



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit : 3721
Examiner: Mr. Louis B. Tran

In re PATENT APPLICATION of

Applicants : Satoshi KUME, et al.

Appln. No.: 09/610,263

Filed : July 5, 2000

For : ULTRASONIC SEALING APPARATUS

Conf. No. : 5002

Atty. Dkt. : 31671-164489RK

AMENDMENT

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May 29, 2002

Customer No.



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PATENT TRADEMARK OFFICE

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

PETITION FOR EXTENSION OF TIME

Please extend the period for responding to the Office Action of January 29, 2002 by one month, and thus until May 29, 2002. The requisite extension fee of \$110 is included in a remittance that is being submitted concurrently. Should this remittance be inadvertently missing, however, or should any additional fees be required, the Commissioner may charge such fees to our Deposit Account number 22-0261, and notify the undersigned attorney accordingly.

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REVISIONS TO THE APPLICATION

Responsive to the Office Action of January 29, 2002, the period for reply to which has now been set to expire on May 29, 2002, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Marked-up copies of the relevant paragraphs of the specification, showing the changes that have been included in the replacement paragraphs, are appended to this Amendment as Attachment A.

Please replace the paragraph on page 3⁴, spanning lines 16-20, with the following rewritten paragraph:

c1 --An object of the invention is to provide an ultrasonic sealing apparatus capable of preventing the sealing failure owing to the tunnel (through passage) occasionally occurring in the step portions in the vicinity of both end portions of the longitudinally sealed portion when the tubular laminated packaging material is transversely ultrasonically sealed with a fluid and the like.--

Please replace the paragraphs on page 13¹⁸, spanning lines 11-15, with the following paragraphs:

c2 -- Fig. 23 is a front view showing an opposing jaw having an opposing jaw working portion of a semicircular shape, in section, in the ultrasonic sealing apparatus of the present invention;

C² Fig. 24 is a schematic perspective view showing a central portion of the opposing jaw shown in Fig. 23 in dashed lines; and

Figs. 25a-b schematically illustrate the sealing tape of the instant invention and a construction of the laminated packaging material, respectively.--

IN THE CLAIMS:

Please cancel claims 16 and 10-14 without prejudice to or disclaimer of the subject matter recited therein.

Please amend claim 3 as follows:

C³ 3. (Twice Amended) An ultrasonic sealing apparatus according to claim 15, wherein the transverse ultrasonic sealing is ultrasonic sealing with a fluid, and the ultrasonic horn and the opposing jaw press together to seal the tubular laminated packaging material filled with fluid content.

IN THE DRAWINGS:

The Examiner is requested to approve new Figures 25A-25B, which are submitted in the concurrently filed Request For Approval Of New Drawing Figures.

REMARKS

Applicants have carefully reviewed and considered the contents of the Office Action of January 29, 2002. Reconsideration is respectfully requested in view of the foregoing amendments and comments set forth below.

By this Amendment, the specification is revised by including a description of new Figures 25A-25B and correcting the objection set forth in paragraph 2 of the Office Action, claims 16 and 10-14 have been canceled, and claim 3 has been amended. In addition, in a concurrently filed Request For Approval Of Drawing Changes, new Figures 25A-25B are presented to schematically illustrate the sealing tape of the instant invention and the construction of the laminated packaging material, respectively. Accordingly, claims 2-8 and 15 are pending in the instant application.

Claim 2 (presumably claim 3) was rejected under 35 U.S.C. § 112, second paragraph, for the reasons expressed in paragraph 6 of the Office Action. By the foregoing amendments, claim 3 has been amended to clarify that the ultrasonic sealing is completed by an ultrasonic horn and an opposing jaw pressed together to seal the tubular laminated packaging material filled with the fluid content. Accordingly, it is respectfully submitted that claim 3 is fully definite under 35 U.S.C. § 112, second paragraph, and withdrawal of that rejection is respectfully requested.

Claim 15 was rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,759,170 to Sawa, et al. (hereinafter referred to as "Sawa"), as explained in paragraph 8 of the Office Action. This rejection is respectfully traversed.

As discussed in the Background Of The Invention, known ultrasonic sealing apparatuses employ a band-shaped ridge provided nearly at the center of a face of the horn, and a concave groove perpendicular to the ridge is provided nearly at the center of a face of an anvil, where the band-shaped ridge and concave groove abut against the container portion to be sealed. The Applicants of the instant invention have discovered a problem in that steps are formed in the vicinity of both end portions of the longitudinally sealed portion. Since the tubular laminated packaging material is formed from a single piece of web material and pressed together, the thickness of the connecting webbed material, which forms the tube, is a three-ply portion 12 that is thicker than that of the remaining two-ply portion, as shown in Fig. 2 of the instant drawings. As a result of the formed steps, the sealing pressure becomes uneven, so that a tunnel or through passage occasionally occurs in the step portion, thereby generating sealing failure. This is the problem that Applicants' invention solves.

Applicants' inventive ultrasonic sealing apparatus includes a horn having an elongated, flat sealing face and an opposing jaw having an elongated pressing face that presses the tubular laminated packaging material in cooperation with the sealing face of the horn, where the elongated pressing face extends in a longitudinal direction, and has a center portion and two end portions where the center portion is narrower than both end portions. As explained on page 4, lines 11-18, of the instant specification, Applicants discovered that if a center portion of a pressing face of an opposing jaw was formed in the longitudinal direction so that it was narrower than both end portions of the pressing face, the necessary pressing force could be

applied evenly to the longitudinally sealed container portion, which has a three-ply thickness, without damaging the laminated packaging material, thereby avoiding sealing failures. That is, the varying of the width of the elongated pressing face of the opposing jaw enables the two-ply tubular packaging material, as well as the three-ply tubular packaging material, to be effectively sealed without damaging the tubular packaging material.

As shown in Figs. 4 and 5, the center portion 24 is narrower than the two end portions 23. The narrower center portion mainly presses the three-ply longitudinally sealed portion of a tubular packaging material, while the broad end portions press the two-ply longitudinally sealed portion of a tubular packaging material. In contrast, Sawa is directed to a filling and packaging method and apparatus, where a flat film made of synthetic resin is formed into a tube and filled with a liquid or highly viscous material, while the tube is being formed to produce a projectile-shaped package constituted by the filled film tube. The Office Action mischaracterizes the disclosed synthetic resin of Sawa as a laminated packaging material containing thermoplastic. However, a larger, structural mischaracterization of Sawa appears to have occurred in the Office Action's description of Sawa. Specifically, Applicants' claim 15 recites "an opposing jaw having an elongated pressing face that presses the tubular laminated packaging material in cooperation with the sealing face of the horn." That is, the elongated pressing face of the opposing jaw must work in cooperation with the sealing face of the horn. Then, the claimed elongated pressing face, extending in a longitudinal direction, has a center portion which is narrower than its two end portions.

Fig. 2(A) of Sawa is a detailed view of the constricting and sealing apparatus, as shown from above. While anvil 13 is described as cooperating with the ultrasonic horn 12, as set forth in column 4, lines 64-66, of Sawa, it does not have an elongated pressing face that extends in a

longitudinal direction or a center portion that is narrower than both of its end portions, as recited in claim 15. Abutment portions 13A, 13B of the anvil cooperate with abutment portions 12A, 12B of horn 12, as shown in Fig. 3 of Sawa. Nowhere does Sawa illustrate or disclose that its abutment portion 12A, 12B, 13A, 13B has an elongated face, let alone an elongated face with a center portion narrower than both its end portions, as required by claim 15. Applicants submit that the center portion of abutments 13A, 13B, as shown in Fig. 3 of Sawa, is a blade 15 for cutting the constricted and sealed synthetic resin. This, of course, is not an elongated pressing face that extends in a longitudinal direction with the center portion being narrower than its two end portions, as claimed by Applicants and clearly shown in Figs. 4 and 5 of the instant application.

The Office Action refers to items 12, 13, and 17, as shown in Fig. 2(A) of Sawa, when describing Sawa's alleged pressing face. Item 17 is a constricting plate which operates in advance of the constricting plate 16A, projecting forwardly beyond the ends of abutment portions 13A, 13B (see column 5, lines 4-30 of Sawa). Nowhere does Sawa disclose that the constricting plates operate "in cooperation with the sealing face of the horn," as required by claim 15. Moreover, the constricting plate has nothing to do with ultrasonic sealing and, therefore, does not press the synthetic resin in conjunction with the horn, as suggested by the Office Action. Constricting plates 17, 17', 16A, 16B press flattened synthetic resin film for constriction, but it is the horn 12 and the anvil 13 that, together, press the tubular packaging material to form the necessary seal. Accordingly, it is respectfully submitted that constricting plate 17 is not an elongated pressing face of anvil 13, but another element of the filling and packaging apparatus. Thus, Sawa cannot anticipate the claimed invention in that Sawa fails to

disclose an opposing jaw having an elongated pressing face extending in a longitudinal direction and having a center portion that is narrower than its two end portions.

Claims 2, 4, 6, and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Sawa in view of U.S. Patent No. 4,159,220 to Bosche, et al. (hereinafter referred to as "Bosche"), as explained in paragraph 10 of the Office Action. This rejection is respectfully traversed.

Bosche is directed to an apparatus and method for vibration sealing. While Bosche discloses an anvil 20 and a horn 18, nowhere does Bosche disclose or illustrate that the work surface 28 of anvil 18 extends in a longitudinal direction and has a center portion which is narrower than its two end portions. Accordingly, Bosche fails to cure the defects of Sawa.

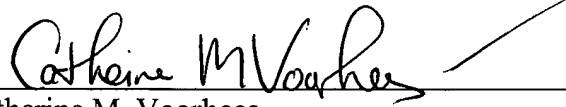
Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Sawa in view of U.S. Patent No. 3,962,508 to Nakanose, as described in paragraph 11 of the Office Action. Nakanose is directed to a thermoplastic resin tape for packaging. While Nakanose indicates, in column 1, lines 5-9, that its thermoplastic resin tape can be used with a packaging machine, the machine merely winds the tape tightly around an article 45, as shown in Fig. 5 of Nakanose. Nowhere does Nakanose disclose, let alone teach or suggest, employing this thermoplastic resin tape for sealing a laminated packaging material to form a container, as claimed by Applicants. Nakanose further fails to disclose an ultrasonic horn having an elongated and flat sealing face, or the opposing jaw having an elongated pressing face, with a center portion that is narrower than its two end portions. Accordingly, Nakanose cannot render Applicants' inventive apparatus obvious, and withdrawal of that rejection is requested.

Paragraph 3 of the Office Action indicates that the Information Disclosure Statement that was filed on July 5, 2000 fails to comply with 37 C.F.R. § 1.98(a)(3), because it does not include an concise explanation of the relevance. As stated in the Information Disclosure Statement, the publications listed on the accompanying PTO-Form 1449 are mentioned at pages 3, 4, and 11 of the originally-filed application, where their relevance is indicated. These statements can be found on pages 2, 3, and 8 of the Substitute Specification. As stated in 37 C.F.R. § 1.98(a)(3), the concise explanation of relevance may either be separate from Applicants' specification or incorporated therein. In the instant application, the Japanese patent documents are described in the text of the application. While the patent publication numbers are written differently in the instant specification (*i.e.*, they include the filing date), it is respectfully submitted that it should be clear that the Japanese patent publication numbers cited in the instant application refer to the document numbers cited on the PTO-Form 1449. In addition to the explanation of relevance in the instant application, the PCT Publication WO 99/48759 includes an English-language abstract from which a further statement of relevance can be gathered. Accordingly, it is respectfully requested that the July 5, 2000 Information Disclosure Statement and the references enclosed therewith be considered by the Examiner, and that the Examiner return an initialed and signed copy of the PTO-Form 1449, indicating his consideration of the same.

In view of the foregoing amendments and remarks, it is respectfully submitted that claims 2-8, and 15 are patentable over the art of record. Accordingly, Applicants request the issuance of a Notice of Allowability, indicating that claims 2-8, and 15 are allowed over the prior art of record.

Should the Examiner believe that a conference would advance the prosecution of this application, he is requested to telephone the undersigned counsel to arrange such a conference.

Respectfully submitted,

A handwritten signature in cursive script, reading "Catherine M. Voorhees", followed by a long horizontal line extending to the right.

Catherine M. Voorhees

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ATTACHMENT A SPECIFICATION CHANGES

This attachment depicts the paragraphs that have been rewritten on pages 3 and 13 of the application as filed, marked-up to show the changes that have been made, with brackets denoting deletions and underlining indicating insertions.

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IN THE SPECIFICATION:

--[A problem] An object of the invention is to provide an ultrasonic sealing apparatus capable of preventing the sealing failure owing to the tunnel (through passage) occasionally occurring in the step portions in the vicinity of both end portions of the longitudinally sealed portion when the tubular laminated packaging material is transversely ultrasonically sealed with a fluid and the like.--

-- Fig. 23 is a front view showing an opposing jaw having an opposing jaw working portion of a semicircular shape, in section, [1n] in the ultrasonic sealing apparatus of the present invention; [and]

Fig. 24 is a schematic perspective view showing a central portion of the opposing jaw shown in Fig. 23 in dashed lines; and

Figs. 25a-b schematically illustrate the sealing tape of the instant invention and a construction of the laminated packaging material, respectively.--

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ATTACHMENT B -- CLAIM CHANGES

This attachment depicts the changes that have been made to claim 3 of the application as filed, marked-up to show the changes that have been made, with brackets denoting deletions and underlining indicating insertions.

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3. (Twice Amended) An ultrasonic sealing apparatus according to claim 15, wherein the transverse ultrasonic sealing is ultrasonic sealing with a fluid, and the ultrasonic horn and the opposing jaw press together to seal the tubular laminated packaging material filled with fluid content.